UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,207	03/29/2004	Earl T. Cohen	65609	1403

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EXAMINER
VU, THONG H

ART UNIT	PAPER NUMBER
2619	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/812,207	COHEN ET AL.
	Examiner	**Art Unit**
	Thong H. Vu	2619

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _09 January 2008_.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-4,7-17 and 19-27_ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-4,7-17 and 19-27_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a) ☐ All b) ☐ Some * c) ☐ None of:

   1. ☐ Certified copies of the priority documents have been received.

   2. ☐ Certified copies of the priority documents have been received in Application No. _____.

   3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1.   Claims 1-4,7-17,19-27 are pending. Claims 5,-6, and 18 are canceled.

Response to Arguments

2.   Applicant's arguments with respect to claims 1-4,7-17,19-27 have been

considered but are moot in view of the new ground(s) of rejection.

Double Patenting

3.   The nonstatutory double patenting rejection is based on a judicially created
doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the
unjustified or improper timewise extension of the "right to exclude" granted by a patent
and to prevent possible harassment by multiple assignees. A nonstatutory
obviousness-type double patenting rejection is appropriate where the conflicting claims
are not identical, but at least one examined application claim is not patentably distinct
from the reference claim(s) because the examined application claim is either anticipated
by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140
F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29
USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir.
1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422
F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163
USPQ 644 (CCPA 1969).
       A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d)
may be used to overcome an actual or provisional rejection based on a nonstatutory
double patenting ground provided the conflicting application or patent either is shown to
be commonly owned with this application, or claims an invention made as a result of
activities undertaken within the scope of a joint research agreement.
       Effective January 1, 1994, a registered attorney or agent of record may sign a
terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with
37 CFR 3.73(b).

       Claims 1-4,7-17,19-27 are rejected on the ground of nonstatutory double

patenting over claims 1-42 of U. S. Patent No. 6,714,985 B1 ('985) since the claims, if

allowed, would improperly extend the "right to exclude" already granted in the patent.

The subject matter claimed in the instant application is fully disclosed in the

patent and is covered by the patent since the patent and the application are claiming

common subject matter, as follows:

('985) 13. A method for high-speed reassembly of fragments received at an
intermediate station in a computer network, the method comprising the steps of
performing a first lookup operation into a content addressable memory (CAM)
subsystem having a plurality of entries (i.e.: queues) to locate a first offset zero
fragment entry associated with a packet;
retrieving contents of a pointer field, a total length field and a 4-tuple field of the located
entry;
using the content of the pointer field to obtain the first offset zero fragment from a
queue of the frame buffer;
performing subsequent lookup operations into the CAM subsystem for subsequent
fragments of the packet stored in the frame buffer using the contents of the 4-tuple field
to obtain pointers to respective queues in the buffer;
obtaining the subsequent fragments from the queues using the pointers; and
reassembling the fragments into proper order within an original packet by placing a
data portion of each fragment in a relative position indicated by a fragment offset value
of each fragment.

(Application) 9, A method for resequencing packets, the method comprising:
maintaining a plurality of queues of a resequencing mechanism; receiving a particular
packet of a stream of packets, each packet of the stream of packets identifying a
sequence number of an ordered sequence of sequence numbers, the particular packet
including a particular sequence number;
identifying a particular queue of the plurality of queues such that no packet in the
particular queue includes a sequence number subsequent to the particular sequence
number in the ordered sequence, wherein said identifying the particular queue includes
checking that the particular queue does not include a packet with a sequence number
subsequent to the particular sequence number in the ordered sequence;
enqueuing the particular packet at the end of the particular queue; and
retrieving packets in sequence from the plurality of queues.

Furthermore, there is no apparent reason why applicant was prevented from

presenting claims corresponding to those of the instant application during prosecution of

the application which matured into a patent. See MPEP § 804.

Claim Rejections - 35 USC § 102

Claim 9 is rejected under 35 U.S.C. 102(e) as being anticipated by Nichols et al [Nichols, 2003/0039250 A1].

4.   Claim 9, Nichols discloses A method for resequencing packets, the method comprising: maintaining a plurality of queues of a resequencing mechanism [Nichols, a queue manager, 0128];

receiving a particular packet of a stream of packets, each packet of the stream of packets identifying a sequence number of an ordered sequence of sequence numbers, the particular packet including a particular sequence number [Nichols, the packet is divided into fragments, 0108; fragment identification data, 0110];

identifying a particular queue of the plurality of queues such that no packet in the particular queue includes a sequence number subsequent to the particular sequence number in the ordered sequence, wherein said identifying the particular queue includes checking that the particular queue does not include a packet with a sequence number subsequent to the particular sequence number in the ordered sequence [Nichols, proper sequencing, 0111];

enqueuing the particular packet at the end of the particular queue [Nichols, enqueue process, 0130]; and

retrieving packets in sequence from the plurality of queues [Nichols, the packet completed reassembly fragment sequences and transmit to the queue manager, 0163].

Claim Rejections - 35 USC § 103

Claims 1-4,7-8,10-17,19-27 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Nichols et al [Nichols, 2003/0039250 A1] in view of Agarwal et al [Agarwal

6,819,658 B1].

5.   Claim 10, Nichols discloses a new queue or specific channel for reassembly

fragment [Nichols, a new fragment reassembly must be initiated, 0168]. However

Nichols does not explicitly detail adding / removing queues or identifying that no queue

in the plurality of queues does not include a packet with a sequence number

subsequent to the particular sequence number in the ordered sequence, and in

response, expanding the plurality of queues by adding the particular queue to the

plurality of queues; and wherein said identifying the particular queue includes said

checking operation when the particular queue is not empty.

It was well-known in the art that a reassembly queue/buffer could be created or

destroyed as needed [Agarwal, a new reassembly buffer is created, the reassembly

buffer is destroyed, col 14 lines 20-51] or when the queue is not empty [Nichols, col14

lines 11]

Therefore it would have been obvious to an ordinary skill in the art at the time the

invention was made to incorporate the technique of adding or removing the queues as

taught by Agarwal into the Nichols apparatus in order to utilize the need of reassembly

fragments.

Doing so would provide a capable of adapting to the varying bandwidth.

6.   Claim 11, Nichols-Agarwal disclose reducing the number of queues in the

plurality of queues in response to identifying that the particular queue is empty [Agarwal,

the queue is empty, col 14 lines 1-5; the reassembly buffer is destroyed, col 14 lines 20-51].

7.   Claim 12, Nichols-Agarwal disclose said reducing the number of queues includes removing the particular queue from the plurality of queues [Agarwal, the queue is empty, col 14 lines 1-5; the reassembly buffer is destroyed, col 14 lines 20-51].

8.   Claim 1, Nichols discloses A method for reassembling a packet, the packet when reassembled includes a plurality of packet fragments with each packet fragment identified with a position within the packet, the method comprising:

maintaining a plurality of queues [Nichols, queue manager, 0128];

enqueuing the plurality of packet fragments in a plurality of the plurality of queues, and retrieving the plurality of packet fragments from the plurality of packet queues based on indications added to a data structure identifying the order of the plurality of packet fragments to produce the packet [Nichols, enqueue process, 0130];

wherein said operation of enqueuing the plurality of packet fragments in the plurality of the plurality of queues includes, for each particular packet fragment of the plurality of packet fragments [Nichols, fragment Identification data, 0110]:

identifying a particular queue of the plurality of queues such that no already queued packet fragment of the packet in the particular queue comes after the particular packet fragment in the packet, wherein said identifying the particular queue for the particular packet fragment includes checking, at least when the particular queue is not empty, that

the particular queue does not include a packet fragment which comes after the

particular packet fragment in the packet [Nichols, the proper sequencing, 0111];

enqueuing the particular packet fragment at the end of the particular queue [Nichols,

enqueue process, 0130]; and

However Nichols does not explicitly detail

updating the data structure to include an indication of the particular queue in relation to

the position of the particular packet fragment in the packet

In the same endeavor, Agarwal discloses method and apparatus for

segmentation, reassembly and inverse multiplexing of packets over networks including

updating the data structure or frame structure designed for synchronization [Agarwal,

the frame structure has been designed to synchronization, col 17 lines 3-12].

Therefore it would have been obvious to an ordinary skill in the art at the time the

invention was made to incorporate the technique of adding /removing the queues as

taught by Agarwal into the Nichols apparatus in order to utilize the need of reassembly

fragments.

Doing so would provide a capable of adapting to the varying bandwidth.

9.   Claim 2, Nichols-Agarwal disclose said retrieving the plurality of packet

fragments is performed in response to identifying that all of the plurality of packet

fragments have been enqueued in the plurality of queues [Nichols, a queue manager,

0128].

10.   Claim 3, Nichols-Agarwal disclose said operation of enqueuing the plurality of packet fragments in the plurality of the plurality of queues includes identifying that no queue in the plurality of queues does not already have enqueued a packet fragment which comes after the particular packet fragment in the packet, and in response, expanding the plurality of queues by adding a queue to the plurality of queues [Agarwal, a new reassembly buffer is created, the reassembly buffer is destroyed, col 14 lines 20-51].

11.   Claim 4, Nichols-Agarwal disclose reducing the number of queues in the plurality of queues in response to identifying that a queue is empty [Agarwal, a new reassembly buffer is created, the reassembly buffer is destroyed, col 14 lines 20-51].

12.   Claim 7, Nichols-Agarwal disclose the data structure corresponds to a meta-packet or scorecard including the indications of the queues of the plurality of queues maintained in an order corresponding to the positions of their corresponding packet fragments within the packet [Nichols, the ordering of the fragment portions is preserved, 0115].

13.   Claim 8, Nichols-Agarwal disclose at least two packet fragments of the packet are enqueued in a same queue of the plurality of queues [Nichols, enqueue process, 0130].

14.   Claim 13, Nichols discloses An apparatus for reassembly of a packet, the packet when reassembled includes a plurality of packet fragments with each packet fragment identified with a position within the packet, the apparatus comprising:

a plurality of reassembly queues [Nichols, a queue manager, 0128];

a reassembly mechanism [Nichols, resequencing module 250, 0129]; and

a distributor configured for each particular packet fragment of the plurality of packet

fragments [Nichols, a fragment rebuilder 230, 0123]: to acquire the particular packet

fragment of the plurality of packet fragments to identify a particular queue of the plurality

of reassembly queues such that no already queued packet fragment in the particular

queue comes after said particular packet fragment in the packet [Nichols, proper

sequencing, 0111];

to cause said particular packet fragment to be enqueued at the end of the particular

queue [Nichols, enqueue process, 0130]; and

wherein said identifying the particular queue includes checking, at least when the

particular queue is not empty, that the particular queue does not include a packet

fragment which comes after said particular packet fragment in the packet; and wherein

at least a plurality of said reassembly queues contains one or more of the plurality of

packet fragments [Nichols, a proper sequencing, 0111]; and

wherein the distributor is configured to identify when all packet fragments of the packet

have been received and in response [Nichols, a fragment rebuilder 230, 0123], to

provide the reassembly mechanism with indications of the queues of the plurality of

reassembly queues containing packet fragments of the packet and their order

corresponding to that of the order of the plurality of packet fragments in the packet

[Nichols, reorder, 0141-0151]; and

wherein the reassembly mechanism is configured to retrieve the plurality of packet

fragments from the plurality of resequencing queues <u>based on the indications added to</u>

<u>the data structure</u> and reassemble the plurality of packet fragments to produce the

packet [Nichols, the packet completed reassembly fragment sequences and transmit to

the queue manager, 0163].

However Nichols does not explicitly detail

to update a data structure to include an indication of the particular queue in relation to

the position of said particular packet fragment in the packet;

In the same endeavor, Agarwal discloses method and apparatus for

segmentation; reassembly and inverse multiplexing of packets over networks including

updating the data structure or frame structure designed for synchronization [Agarwal,

the frame structure has been designed to synchronization, col 17 lines 3-12].

Therefore it would have been obvious to an ordinary skill in the art at the time the

invention was made to incorporate the technique of adding or removing the queues as

taught by Agarwal into the Nichols apparatus in order to utilize the need of reassembly

fragments.

Doing so would provide a capable of adapting to the varying bandwidth.

15.   Claim 14, Nichols-Agarwal disclose the reassembly mechanism is configured to

retrieve the plurality of packet fragments from the plurality of resequencing queues in

their respective order within the packet [Nichols, the ordering of the fragment portions is

preserved, 0115].

16.   Claim 15, Nichols-Agarwal disclose the distributor [Nichols, a fragment rebuilder 230, 0127]is configured to communicate a meta-packet or scorecard including said indications of the queues to the reassemblv mechanism [Nichols a reassembly session number, 0111].

17.   Claim 16, Nichols-Agarwal disclose the distributor [Nichols, a fragment rebuilder 230, 0127] is configured to identify that every queue in the plurality of queues already includes a packet fragment corresponding to subsequent position in the packet and in response, causing the plurality of queues to expand in number by adding the particular queue to the plurality of queues [Agarwal, a new reassembly buffer is created, the reassembly buffer is destroyed, col 14 lines 20-51].

18.   Claim 17 Nichols-Agarwal disclose the apparatus is configured to reduce the number of queues in the plurality of queues in response to identifying that the particular queue is empty [Agarwal, a new reassembly buffer is created, the reassembly buffer is destroyed, col 14 lines 20-51].

19.   Claim 19, Nichols-Agarwal disclose the distributor [Nichols, a fragment rebuilder 230, 0127] identifies a same particular queue of the plurality of reassembly queues for at least two of the plurality of packet fragments [Nichols, two fragments, 0017].

20.   Claim 20 , Nichols discloses A method for resequencing and reassembling of packets, the method comprising:

maintaining a plurality of queues [Nichols, a queue manager, 0128];

acquiring a packet fragment of a plurality of packet fragments of a packet, wherein a

stream of a plurality of packets includes the packet [Nichols, packet and fragments,

0110];

identifying a particular queue of the plurality of queues for the particular packet fragment

such that no already queued packet fragment in the particular queue comes after the

particular packet fragment in the packet and the particular queue includes no already

queued packet fragment of a packet subsequent to the particular packet in the stream of

packets; wherein said identifying the particular queue includes checking, at least when

the particular queue is not empty, that the particular queue does not include a packet

fragment which comes after the particular packet fragment in the packet or the stream

of packets [Nichols a proper sequencing, 0111];

enqueuing the particular packet fragment at the end of the particular queue [Nichols,

enqueue process, 0130]; and

retrieving the plurality of packet fragments from the plurality of packet queues based on

the data structure to produce the packet [Nichols, the packet completed reassembly

fragment sequences and transmit to the queue manager, 0163].

However Nichols does not explicitly detail

updating a data structure to include an indication of the particular queue in relation to

the position of the particular packet fragment in the packet and the stream of packets;

In the same endeavor, Agarwal discloses method and apparatus for

segmentation, reassembly and inverse multiplexing of packets over networks including

updating the data structure or frame structure designed for synchronization [Agarwal,

the frame structure has been designed to synchronization, col 17 lines 3-12].

Therefore it would have been obvious to an ordinary skill in the art at the time the

invention was made to incorporate the technique of adding or removing the queues as

taught by Agarwal into the Nichols apparatus in order to utilize the need of reassembly

fragments.

21.   Claim 21, Nichols-Agarwal disclose said retrieving the plurality of packet

fragments is performed in response to identifying that all of the plurality of packet

fragments have been enqueued in the plurality of queues and no other packet prior to

the packet in the stream of packets is enqueued in the plurality of queues [Nichols,

enqueue process, 0130].

22.   Claim 22, Nichols-Agarwal disclose identifying that no queue in the plurality of

queues does not already have enqueued a packet fragment in the particular queue

which comes after the particular packet fragment in the packet or a packet fragment of a

packet subsequent to the packet, and in response, expanding the plurality of queues by

adding the particular queue to the plurality of queues [Agarwal, a new reassembly buffer

is created, the reassembly buffer is destroyed, col 14 lines 20-51].

23.   Claim 23, Nichols-Agarwal disclose reducing the number of queues in the

plurality of queues in response to identifying that the particular queue is empty [Agarwal,

a new reassembly buffer is created, the reassembly buffer is destroyed, col 14 lines 20-

51].

24.   Claim 24, Nichols-Agarwal disclose said reducing the number of queues includes removing the particular queue from the plurality of queues [Agarwal, a new reassembly buffer is created, the reassembly buffer is destroyed, col 14 lines 20-51].

25.   Claim 25, Nichols-Agarwal disclose the plurality of packet fragments are retrieved from the plurality of queues in order of their respective position within the packet and the order of the packet within the steam of packets [Nichols, the ordering of the fragment portions is preserved, 0115].

26.   Claim 26, Nichols-Agarwal disclose the data structure corresponds to a meta-packet or scorecard including the indications of the queues of the plurality of queues maintained in an order corresponding to the positions of their corresponding packet fragments within the packet [Nichols, the ordering of the fragment portions is preserved, 0115].

27.   Claim 27, Nichols-Agarwal disclose at least two packet fragments of the packet are enqueued in a same queue of the plurality of queues [Nichols, enqueue process, 0130].

5. Examiner's note:
Examiner has cited particular columns and line numbers in the references as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thong H. Vu whose telephone number is 571-272-3904. The examiner can normally be reached on 6:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Thong Vu
Primary Examiner

THONG VU
PRIMARY PATENT EXAMINER